

Claims

1. A hyperthermia agent for malignant tumor which comprises cytokine and magnetic fine particles.
- 5 2. A hyperthermia agent for malignant tumor which comprises a vector into which a cytokine gene is integrated so that cytokine can be expressed in a malignant tumor cell and magnetic fine particles.
3. The hyperthermia agent according to Claim 1 or 2,
- 10 wherein the magnetic fine particles are magnetic fine particles on the surface of which is bound to an antibody which selectively binds to malignant tumor cells.
4. The hyperthermia agent according to Claim 1 or 2, wherein the magnetic fine particles are magnetite.
- 15 5. The hyperthermia agent according to Claim 4, wherein the magnetite is a magnetite covered by cationic liposome.
6. The hyperthermia agent according to any one of Claims 1, 2 and 5, wherein the cytokine is at least one cytokine selected from the group consisting of interleukin-2,
- 20 granulocyte macrophage colony stimulating factor, interleukin-4, interleukin-12, interferon- β , interferon- γ , and tumor necrosis factor- α .
7. The hyperthermia agent according to Claim 3, wherein the cytokine is at least one cytokine selected from the group
- 25 consisting of interleukin-2, granulocyte macrophage colony stimulating factor, interleukin-4, interleukin-12, interferon- β , interferon- γ , and tumor necrosis factor- α .
8. The hyperthermia agent according to Claim 4, wherein the cytokine is at least one cytokine selected from the group
- 30 consisting of interleukin-2, granulocyte macrophage colony stimulating factor, interleukin-4, interleukin-12, interferon- β , interferon- γ , and tumor necrosis factor- α .
9. The hyperthermia agent according to Claim 6, wherein the cytokine is interleukin-2.
- 35 10. The hyperthermia agent according to Claim 7, wherein

the cytokine is interleukin-2.

11. The hyperthermia agent according to Claim 8, wherein
the cytokine is interleukin-2.

12. The hyperthermia agent according to Claim 6, wherein
5 the cytokine is a granulocyte macrophage colony stimulating
factor.

13. The hyperthermia agent according to Claim 7, wherein
the cytokine is a granulocyte macrophage colony stimulating
factor.

10 14. The hyperthermia agent according to Claim 8, wherein
the cytokine is a granulocyte macrophage colony stimulating
factor.

15. The hyperthermia agent according to any one of Claims
1, 2, 5 and 7 to 14, wherein the agent contains cytokine or
15 a vector in which a cytokine gene is integrated so that
cytokine can express in malignant tumor cells, and magnetic
fine particles in combination or separately.

16. The hyperthermia agent according to Claim 3, wherein
the agent contains cytokine or a vector in which a cytokine
20 gene is integrated so that cytokine can express in
malignant tumor cells, and magnetic fine particles in
combination or separately.

17. The hyperthermia agent according to Claim 4, wherein
the agent contains cytokine or a vector in which a cytokine
25 gene is integrated so that cytokine can express in
malignant tumor cells, and magnetic fine particles in
combination or separately.

18. The hyperthermia agent according to Claim 6, wherein
the agent contains cytokine or a vector in which a cytokine
30 gene is integrated so that cytokine can express in
malignant tumor cells, and magnetic fine particles in
combination or separately.

19. A method of using cytokine for hyperthermia of
malignant tumor.

35 20. A hyperthermia method of malignant tumor which com-

prises administering cytokine to malignant tumor, then the malignant tumor is subjected to hyperthermia.

21. A method of using a cytokine gene in hyperthermia of malignant tumor.

5 22. A hyperthermia method of malignant tumor which comprises introducing a vector into which a cytokine gene is integrated, so that it can express the cytokine in malignant tumor cells, into malignant tumor whereby expressing the cytokine in the malignant tumor cells, then subjecting
10 the malignant tumor tissue to hyperthermia.